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org.apache.commons.collections4.list

## Class AbstractListDecorator<E>

* [java.lang.Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)
  + [org.apache.commons.collections4.collection.AbstractCollectionDecorator](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html)<E>
    - org.apache.commons.collections4.list.AbstractListDecorator<E>
* Type Parameters: E - the type of the elements in the list All Implemented Interfaces: [Serializable](https://docs.oracle.com/javase/7/docs/api/java/io/Serializable.html?is-external=true), [Iterable](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)<E>, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<E>, [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<E> Direct Known Subclasses: [AbstractSerializableListDecorator](http://docs.google.com/org/apache/commons/collections4/list/AbstractSerializableListDecorator.html)  
    
  public abstract class AbstractListDecorator<E>  
  extends [AbstractCollectionDecorator](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html)<E>  
  implements [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<E>  
  Decorates another [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true) to provide additional behaviour.  
  Methods are forwarded directly to the decorated list.Since: 3.0 See Also: [Serialized Form](http://docs.google.com/serialized-form.html#org.apache.commons.collections4.list.AbstractListDecorator)

### Constructor SummaryConstructors

|  |  |
| --- | --- |
| * + Modifier | * + Constructor and Description |
| * + protected | * + [AbstractListDecorator](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#AbstractListDecorator--)() Constructor only used in deserialization, do not use otherwise. |
| * + protected | * + [AbstractListDecorator](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#AbstractListDecorator-java.util.List-)([List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> list) Constructor that wraps (not copies). |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + void | * + [add](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#add-int-E-)(int index, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) object) |
| * + boolean | * + [addAll](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#addAll-int-java.util.Collection-)(int index, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> coll) |
| * + protected [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> | * + [decorated](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#decorated--)() Gets the list being decorated. |
| * + boolean | * + [equals](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#equals-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) | * + [get](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#get-int-)(int index) |
| * + int | * + [hashCode](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#hashCode--)() |
| * + int | * + [indexOf](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#indexOf-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) |
| * + int | * + [lastIndexOf](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#lastIndexOf-java.lang.Object-)([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object) |
| * + [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> | * + [listIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#listIterator--)() |
| * + [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> | * + [listIterator](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#listIterator-int-)(int index) |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) | * + [remove](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#remove-int-)(int index) |
| * + [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) | * + [set](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#set-int-E-)(int index, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) object) |
| * + [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> | * + [subList](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html#subList-int-int-)(int fromIndex, int toIndex) |

### Methods inherited from class org.apache.commons.collections4.collection.[**AbstractCollectionDecorator**](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html)[add](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#add-E-), [addAll](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#addAll-java.util.Collection-), [clear](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#clear--), [contains](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#contains-java.lang.Object-), [containsAll](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#containsAll-java.util.Collection-), [isEmpty](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#isEmpty--), [iterator](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#iterator--), [remove](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#remove-java.lang.Object-), [removeAll](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#removeAll-java.util.Collection-), [removeIf](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#removeIf-java.util.function.Predicate-), [retainAll](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#retainAll-java.util.Collection-), [setCollection](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#setCollection-java.util.Collection-), [size](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#size--), [toArray](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#toArray--), [toArray](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#toArray-T:A-), [toString](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#toString--)

### Methods inherited from class java.lang.[**Object**](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)[clone](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#clone--), [finalize](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#finalize--), [getClass](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#getClass--), [notify](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#notify--), [notifyAll](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#notifyAll--), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait--), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait-long-), [wait](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#wait-long-int-)

### Methods inherited from interface java.util.[**List**](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)[add](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#add-E-), [addAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#addAll-java.util.Collection-), [clear](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#clear--), [contains](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#contains-java.lang.Object-), [containsAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#containsAll-java.util.Collection-), [isEmpty](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#isEmpty--), [iterator](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#iterator--), [remove](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#remove-java.lang.Object-), [removeAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#removeAll-java.util.Collection-), [replaceAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#replaceAll-java.util.function.UnaryOperator-), [retainAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#retainAll-java.util.Collection-), [size](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#size--), [sort](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#sort-java.util.Comparator-), [spliterator](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#spliterator--), [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#toArray--), [toArray](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#toArray-T:A-)

### Methods inherited from interface java.util.[**Collection**](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)[parallelStream](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#parallelStream--), [removeIf](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#removeIf-java.util.function.Predicate-), [stream](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#stream--)

### Methods inherited from interface java.lang.[**Iterable**](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true)[forEach](https://docs.oracle.com/javase/7/docs/api/java/lang/Iterable.html?is-external=true#forEach-java.util.function.Consumer-)

### Constructor Detail

#### AbstractListDecorator protected AbstractListDecorator() Constructor only used in deserialization, do not use otherwise.Since: 3.1

#### AbstractListDecorator protected AbstractListDecorator([List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> list) Constructor that wraps (not copies).Parameters: list - the list to decorate, must not be null Throws: [NullPointerException](https://docs.oracle.com/javase/7/docs/api/java/lang/NullPointerException.html?is-external=true) - if list is null

### Method Detail

#### decorated protected [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> decorated() Gets the list being decorated.Overrides: [decorated](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html#decorated--) in class [AbstractCollectionDecorator](http://docs.google.com/org/apache/commons/collections4/collection/AbstractCollectionDecorator.html)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> Returns: the decorated list

#### equals public boolean equals([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object)Specified by: [equals](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#equals-java.lang.Object-) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> Specified by: [equals](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#equals-java.lang.Object-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> Overrides: [equals](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#equals-java.lang.Object-) in class [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)

#### hashCode public int hashCode()Specified by: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true#hashCode--) in interface [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> Specified by: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#hashCode--) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> Overrides: [hashCode](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true#hashCode--) in class [Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true)

#### add public void add(int index, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) object)Specified by: [add](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#add-int-E-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

#### addAll public boolean addAll(int index, [Collection](https://docs.oracle.com/javase/7/docs/api/java/util/Collection.html?is-external=true)<? extends [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> coll)Specified by: [addAll](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#addAll-int-java.util.Collection-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

#### get public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) get(int index)Specified by: [get](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#get-int-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

#### indexOf public int indexOf([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object)Specified by: [indexOf](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#indexOf-java.lang.Object-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

#### lastIndexOf public int lastIndexOf([Object](https://docs.oracle.com/javase/7/docs/api/java/lang/Object.html?is-external=true) object)Specified by: [lastIndexOf](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#lastIndexOf-java.lang.Object-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

#### listIterator public [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> listIterator()Specified by: [listIterator](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#listIterator--) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

#### listIterator public [ListIterator](https://docs.oracle.com/javase/7/docs/api/java/util/ListIterator.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> listIterator(int index)Specified by: [listIterator](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#listIterator-int-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

#### remove public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) remove(int index)Specified by: [remove](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#remove-int-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

#### set public [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) set(int index, [E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html) object)Specified by: [set](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#set-int-E-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

#### subList public [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)> subList(int fromIndex, int toIndex)Specified by: [subList](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true#subList-int-int-) in interface [List](https://docs.oracle.com/javase/7/docs/api/java/util/List.html?is-external=true)<[E](http://docs.google.com/org/apache/commons/collections4/list/AbstractListDecorator.html)>

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